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The continuing development of Scottish economic statistics

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Abstract

Scottish economic statistics produced by the Scottish Government have improved considerably over the last decade and are more comprehensive than for any other part of the UK and for many devolved administration internationally. We now publish a wide range of statistics on the Scottish economy, ranging from GDP, labour market indicators, productivity, international trade to a full set of national accounts and detailed Input-Output tables.

Over the coming year we are taking forward an extensive programme of work to further enhance Scotland's economic statistics. This will include, developing estimates of GNI for Scotland, bringing forward the publication of GDP and estimating a set of accounts for Scotland to include the North Sea.

Introduction

Sound economic statistics are an essential source of information for policy makers, academics, researchers, economic commentators and the wider public. The majority of the economic statistics published for Scotland are produced and published by statisticians in the Office of the Chief Economic Adviser (OCEA) in the Scottish Government.

The range of the economic statistics that we publish for Scotland continues to grow to meet user needs and to enhance understanding of Scotland's economy. The statistical methods we use also continue to evolve, to reflect new data sources and improved statistical techniques.

Progress is also being made outwith the Scottish Government. The Office for National Statistics (ONS) now produces a wider range of regional information, for example income-based Gross Value Added (GVA) and Gross Disposable Household Income (GDHI) at a local authority level, and a set of Public Sector Finances data for the UK Countries and Regions. In addition, HMRC has recently made improvements in the methodology it uses to produce its Regional Trade Statistics.

There are also important legislative changes, with the recently enacted Digital Economy Act providing the potential for the Scottish Government to utilise administrative data held by other

areas of the public sector in producing our statistics. This will help to improve both the quality and timeliness of Scottish economic statistics.

This article describes how Scottish economic statistics have developed over the past decade, the current plans in place to develop the quality an range of these statistics, and a forward look to longer term developments especially relating to new opportunities available to statisticians across government.

Who we are and what statistics do we produce

There are 27 professional statisticians in OCEA producing Scottish economic statistics.

Over the past year, OCEA has published over sixty statistical releases. Our key economic statistics include: quarterly GDP statistics, a range of quarterly National Accounts statistics, monthly labour market updates, annual exports statistics, detailed annual business statistics, annual Input-Output tables, and one-off publications on topical issues such as EU workers in Scotland. Our main outputs are summarised below. All of our statistics can be accessed view the Scottish Government's website.¹

Summary of Scottish Economic Statistics Published by OCEA

National Accounts	Labour Market	Business and Trade	Energy and Climate Change
<ul style="list-style-type: none">• GDP• Retail Sales• Labour Productivity• Public Sector Finances• National Accounts• Input-Output Tables• Analytical I-O Tables• Oil and Gas Statistics	<ul style="list-style-type: none">• Monthly Labour Market Briefs• Public Sector Employment• Regional Employment Patterns• Annual Survey of Hours and Earnings• Labour Market Trends• NEET Analysis	<ul style="list-style-type: none">• Export Statistics Scotland• Scottish Annual Business Statistics• Businesses in Scotland• Research & Development• Growth Sectors• Innovation Activity	<ul style="list-style-type: none">• Scotland's Carbon Footprint• Energy Statistics - Quarterly Summary• Oil and Gas Production Statistics• Energy in Scotland• Energy Targets• Energy Balance

The economic statistics published for Scotland are more comprehensive, and more timely, than for any other part of the UK, and for many other devolved governments internationally. However, we are constantly seeking to improve the coverage of Scotland's economic statistics.

¹ <http://www.gov.scot/Topics/Statistics/Browse> - see topics: economy; business, enterprise and energy; and labour market.

Further details about resources and what we do can be found in the Scottish Economic Statistics Plan 2017-18 which is available on the web.²

How do we produce our statistics

All statistics published by OCEA are classified as Official Statistics. This means that they are produced impartially and free from political interference, and comply with the Code of Practice for Official Statistics. Most of our statistics are also classified as National Statistics. This means that they have been assessed by the UK Statistics Authority as complying with the Code of Practice for Official Statistics. National Statistics are regularly assessed by the UK Statistics Authority to ensure the standards are maintained.

Our statistics are produced by professional statisticians in line with international standards and subject to detailed quality assurance and peer review. All changes in data sources and methods are consulted on with users.

We use a range of data sources to produce our statistics as detailed below:

- We receive detailed company-level data on businesses and local units operating in Scotland from ONS.
- We receive data directly from some major companies in Scotland.
- We undertake an annual survey of companies exporting from Scotland to both the rest of the UK and internationally.
- We utilise a range of other service providers, in both the private and public sector, to augment the Scottish data we have. For example, we use the Survey of Personal Incomes, an anonymised dataset of around 45,000 Scottish income tax payers produced by HMRC, to undertake analysis of Scottish earnings
- Where ONS undertakes company level surveys, we contribute to the cost to boost the Scottish samples. This allows us to undertake more detailed analysis than would otherwise be possible. For example, we boost the Labour Force Survey from around 6,000 to 22,000 households each year. This enables us to produce statistically robust estimates of a wide range of socio-economic indicators for various different sub-groups of the population, or for geographical areas such as for local authorities.
- Where raw data are not available, we use a range of apportionment techniques to estimate economic activity in Scotland.

² <http://www.gov.scot/Topics/Statistics/Browse/Economy/ScotStat/Planning>

Statisticians in OCEA engage regularly with users to quality assure our statistical outputs, prioritise future statistical work and to enhance our publications. This engagement includes regular user surveys relating to our main products, and meetings of the Scottish Economic Statistics Consultation Group (SESCG), which comprises of experts from academia, public sector and business communities. In addition, we have a number of SESCg subgroups of sector experts to provide specific feedback and guidance on specialist areas of work. More detail about these groups, including membership, presentations and minutes are available on the web.³

A Brief History of Scottish National Accounts

Twenty years ago there were little in the way of economic statistics available for Scotland. There were no estimates of real-terms GDP. Output indices for production and construction (which are easier to measure than other industries) were available on a quarterly basis, and a nominal terms GDP, largely based on UK employment shares, was available annually with a considerable time lag.

The Scottish Government did however have a strong working relationship with the Fraser of Allander Institute and both bodies had worked together to produce Input-Output tables for 1973, 1979 and 1989 (one of my first projects with the Scottish Office, as it was known then). These were difficult and time-consuming to produce, and done infrequently – meeting the needs of academics and economic modellers at the time, but certainly not suitable for constructing a framework to underpin a system of national accounts for Scotland as required in a post-devolution world.

Addressing the needs of the Scottish Parliament, quarterly real-terms GDP estimates for onshore Scotland, were published for the first time in May 2002. OCEA has produced these every quarter since then.

In response to user feedback, the Scottish National Accounts Project (SNAP) was launched in October 2008 with a remit to build a complete set of national accounts for Scotland. This project set out to develop:

- annual, consistent and updateable Input-Output tables for Scotland;
- quarterly nominal GDP estimates using a production, income and expenditure approaches, consistent with the I-O tables;
- quarterly revenue estimates, consistent with GERS and the basic price adjustment; and
- quarterly trade flow estimates, as balancing items

³ <http://www.gov.scot/Topics/Statistics/Browse/Economy/ScotStat/comms>

The first set of experimental estimates for quarterly income-based GDP was published in August 2009. The Quarterly National Accounts for Scotland (QNAS) publication has been produced quarterly since October 2010 and is now classified as a National Statistic. A quarterly Retail Sales Index for Scotland was also introduced 2010. The range of tables in the Quarterly National Account publication has grown considerably since then – a new experimental series for business investment, for example, was introduced last year.

Expanding our Economic Statistics

We strive to continuously improve the quality, breadth and accessibility of our statistical outputs. Some of our key achievements during 2016/17 include:

- New publication providing quarterly productivity statistics for Scotland
- Bringing forward the publication of our Government Expenditure and Revenue Scotland (GERS) publication by seven months to August from the following March.
- New topical publication providing detailed analysis of labour market indicators for migrant workers in Scotland.
- Accelerating the publication of Scottish GDP to increase its timeliness.
- New annual publication of oil and gas production, expenditure and income

Further details are available in Annex D in the Scottish Economic Statistics Plan 2017-18.

In addition to continuing to improve our existing statistics, OCEA is developing a range of new statistical products over the coming year. These will initially be presented as “experimental statistics” and will be published alongside other related official statistics. The “experimental” nature of these new statistics is to allow time to quality assure the figures and to discuss their usability. In due course, it is expected that the developed products will either form part of existing publications or be standalone releases in their own right.

The projects being taken forward in 2017-18 include the development of:

- Whole of Scotland Economic Accounts
- Quarterly Gross National Income (GNI)
- Balance of Payments

- Earlier Publication of GDP
- Sub-Scotland economic statistics

These projects were discussed and agreed in consultation with SESCOG. The slides from the presentation at SESCOG on 25 April 2017 are publically available.⁴

Whole of Scotland Economic Accounts

Many of the economic statistics currently produced for Scotland, for example the headline GDP index, relate to Scotland's on-shore economy. Others, such as the Quarterly National Accounts and GERS capture some of the economic activity undertaken by the oil and gas industry in the North Sea.

This Special Project will initially establish a set of Input-Output tables providing details of flows of the value of goods and services to and from the offshore industry and the onshore Scottish economy, Rest of the UK and Rest of the World. The satellite account can then be combined with the onshore Scottish Input-Output tables to form a "Whole of Scotland " set of accounts. This will allow for much more detailed analysis of the offshore sector, and its interaction with the wider Scottish economy, than has previously been possible.

It is planned that this work will be shared with users as experimental statistics later in 2017/18.

Quarterly Gross National Income (GNI)

Many users of Scottish economic statistics have suggested that estimates of Scottish GDP should be complemented by estimates of GNI. GNI is an adjustment to the conventional GDP measure to take account of financial flows into and out of the country due to ownership. For example, where profits made by Scottish companies outside of Scotland are repatriated, this would be included in GNI but is not included in GDP. Likewise, when non-Scottish companies repatriate profits made in Scotland this is included in Scottish GDP, but would be deducted from estimates of Scottish GNI.

Annual figures for Scottish GNI were published in 2013 relating to the calendar year 2010 (further details about the estimates and underpinning methods may be found here - <http://www.gov.scot/Topics/Statistics/Browse/Economy/SNAP/expstats>). This work was published as experimental estimates and has not been updated since.

⁴ <http://www.gov.scot/Topics/Statistics/Browse/Economy/ScotStat/Meetings>

Work is being undertaken to estimate Scottish GNI on a regular basis. There are a number of challenges in producing such estimates for Scotland. However, it is hoped that these figures will be published on an experimental basis later in the year.

Balance of Payments

The above projects will help to provide estimates of Scotland's Balance of Trade for both the onshore and offshore sectors, and Scotland's Primary Income Account (the difference between GNI and GDP). These are the two largest components of a country's Balance of Payments. The missing element is the secondary income account which is primarily flows between Scottish and non-Scottish households and inter-Governmental transfers.

A longer term project will be undertaken to estimate these missing elements of Scotland's balance of payments. It is likely that this work will involve a lot of user consultation as there will be many definitional and classification issues to address in the process.

Earlier Publication of GDP

Many users have requested earlier estimates of our headline GDP statistics. Prior to 2016/17, GDP was published around 110 days after the end of the reference period. Changes to the GDP production process mean that it is now published around 97 days after the end of the reference period.

This project is looking at how the publication time can be further reduced. It will explore whether any of the key components can be completed earlier, look at the accuracy of earlier cuts of the data (minimising the risk of future revisions), and consider how now-casting techniques can be used in the absence of complete data.

Work will continue throughout 2017/18 with a view to publishing earlier in 2018/19.

Sub-Scotland economic statistics

Many users of Scottish economic statistics have requested more figures for sub-Scottish geographies. There is increasing interest in local area statistics, especially relating to identifying and reducing poverty as part of the Inclusive Growth agenda. Community Planning Partners (across local government, Police Scotland, the Fire and Rescue Service, Health Boards etc.) have identified lack of local economic data as a major issue when analysing their areas of poverty, establishing local trends and measuring progress over time.

In the first instance, we propose to set up a SESCOG sub-group to discuss local priorities for local data. We plan to have the first meeting in October/November 2017.

Longer-term proposals for change

In addition to the ambitious programme of work for 2017/18, OCEA is also considering the longer-term statistical requirements, in particular how to meet user requirements as Scotland gains more fiscal responsibility and to reflect the growing digital economy. The Digital Economy Act will provide an opportunity to access more data than previously available which will help to improve both the quality and timeliness of Scottish economic statistics.

Two areas of particular focus are:

- Collecting more Scottish-specific data
- Improving regional prices data and real-terms components of GDP

Collecting more Scottish-specific data

Historically, economic statistics have been derived from the surveys ONS undertakes of businesses in Scotland and the rest of the UK. The ONS business surveys are collected under the Statistics of Trade Act (1947) requiring large companies to submit data by law in order to compile the UK National Accounts. The Scottish Government does not have any legal mechanisms to enforce data collection.

However, there is also a substantial amount of data collected by other parts of the UK Government that has the potential to improve the quality of Scottish economic statistics. For example, tax returns for VAT, corporation tax and income tax can provide timely and detailed information to enhance Scotland's economic statistics.

Historically, there have been a number of legal impediments to the sharing of data across the public sector. The new Digital Economy Act provides a vehicle whereby data can be more easily shared, provided a genuine statistical need is established and appropriate data security arrangements are in place. We intend to make use of this legislation proactively to enhance our statistics and analysis. OCEA is currently engaging with HMRC to identify opportunities to access some of the data it holds.

This will take time as data-sharing agreements need to be put in place and it will take time to assess the new data sources and consider how they can be best used to supplement the existing

data that OCEA holds. However, it represents an important development which has the potential to significantly enhance Scotland's economic statistics.

Improving regional prices data and real-terms components of GDP

Currently real-terms (i.e. adjusting for price change) GDP are only compiled using the production (or output) approach – i.e. breaking down GDP growth by industrial sectors.

The income and expenditure based estimates of GDP components – which break down GDP income components (such as earnings and profits) and expenditure components (such as household and government consumption, investment, trade etc.), are only currently available for nominal (cash values) estimates.

Ideally, the expenditure estimates should be deflated and harmonised with the output-based estimates. This would provide a richer set of national accounts estimates and improve coherence between different parts of the accounts.

OCEA is currently considering whether suitable deflators are available for GDP expenditure components. This will help improve the coherence between the various components of Scottish GDP, and will provide better quality data to underpin the Scottish Fiscal Commission's forecasts and to ensure they are consistent with the assumptions used in compiling Scotland's national accounts.

Lack of sub-UK prices is also an area where further improvement is required. The Scottish Government's GDP estimates make the assumption that national (UK) prices (levels and changes) reasonably reflect Scottish prices. Discussions are currently underway with ONS to explore how regional prices can be better estimated from a wider range of data sources.

Conclusion

High quality economic statistics for Scotland are essential to government, policy makers, academics, the media and the public, in order to understand what drives change in the economy and to evaluate the impact of policy intervention. For a country to make well-informed decisions impacting the economy, a reliable set of national accounts statistics are vital. Significant progress has been made in recent years to improve these statistics for Scotland, and an ambitious programme of work is underway to develop these further. The Digital Economy Act will provide an opportunity to access more data than previously available which will help to improve both the quality and timeliness of Scottish economic statistics.

If readers wish to be involved in these developments please get in touch with the author.

Author details

Sandy Stewart has worked in Scottish economic statistics since 1988. He was responsible for compiling the 1989 Input-Output tables, the development of the quarterly GDP system and conceiving the Scottish National Accounts Project. He has also worked for the UK Statistics Authority as advisor on UK economic statistics and head of its monitoring programme.

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